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Development Services Department
Plan Review Division
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Building Newsletter 23-3

Horizontally Sheathed Diaphragms

Interpretations of State and Local Building Codes
1994 Uniform Building Code: Chapter 23
Revision Date: January 1996

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I. Wood Diaphragms

Wood diaphragms consisting of sheathing boards running at right angles to joists may be used to resist horizontal forces provided the deflection in the plane of the diaphragm does not exceed the permissible deflection of attached distributing or resisting elements per Section 2314.4 of the Uniform Building Code.

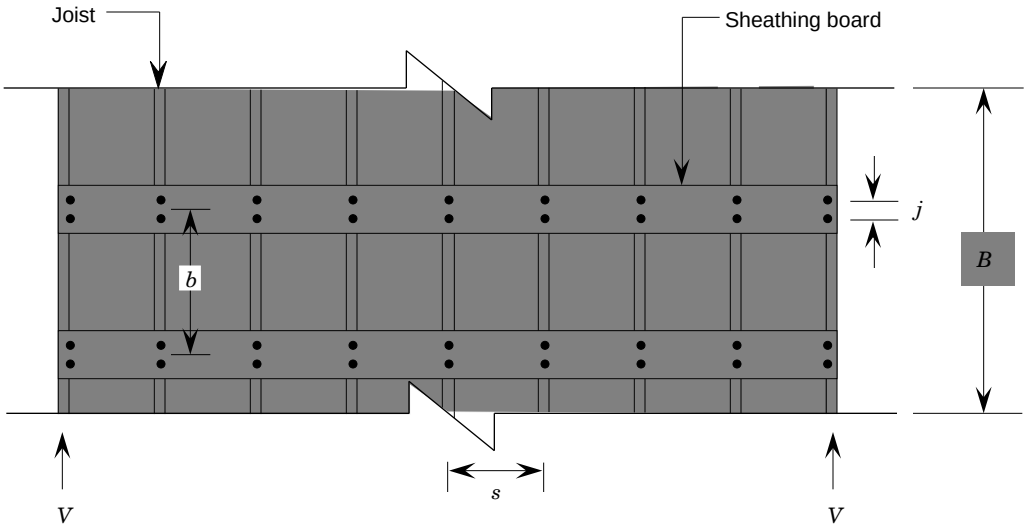
II. Diaphragm Sheathing Nails

The shear on every nail fastening the sheathing to the joists shall be determined by the formula:

$$F = \frac{Vsb}{jB}$$

and must not exceed the allowable lateral strength as governed by Section 2311.3, Nails and Spikes, of the Uniform Building Code.

Diaphragm sheathing nails shall be driven flush but shall not fracture the surface of the sheathing.



F = Shear on any nail measured in pounds

V = Total shear at any point in the wood diaphragm measured in pounds

s = Joist spacing measured in feet

b = Distance from center-to-center of sheathing boards measured in inches

j = Distance between nails forming a nail couple in each sheathing board at each joist measured in inches

B = Width of diaphragm measured in feet